Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR PERMIT NO. F-05-016 R2
HUISH DETERGENTS INC.
385 SOUTHWOOD COURT, BOWLING GREEN, KY 42101
FEBRUARY 5, 2007
RALPH E. GOSNEY, REVIEWER
SOURCE I.D. #: 021-227-00100
SOURCE A.I. #: 4117
ACTIVITY #: APE20060002

SOURCE DESCRIPTION:
Huish Detergents Incorporated has applied for a second minor revision to their Conditional Major permit to operate a detergent manufacturing plant in Bowling Green, Kentucky. The original Conditional Major permit was issued on November 5, 2005.

Huish Detergents has the potential to be a major source for particulate matter less than 10 microns (PM10) emissions (100 tons per year (TPY)). A federally enforceable state operating permit under 401 KAR 52:030 will limit the emissions of the source below the major source thresholds. This is done with the use of control equipment with efficiencies of 98% and higher, as well as limiting the production rate of the equipment.

Huish Detergent's manufacturing plant produces detergents and other laundry related products. Some examples of the products manufactured are liquid laundry detergents, different grades of laundry detergent powders and liquid dish washing detergents. They also have blow molding and injection molding equipment to manufacture plastic bottles and pour spouts.

The plant operations can be categorized into three different categories – the powders process, the liquid process area I, and the liquid process area II. In the liquid process, different combinations of the raw materials are mixed in eight different kinds of mixers to produce different kinds of liquid products. Liquids area I has three pre-mixers and five mixers, while liquids area II has three pre-mixers and eight mixers. In the powder process, the products are spray dried before being mixed with enzymes, perfume, and other additives and sent to packaging lines.

The raw materials are stored in tanks connected with baghouses and bin vents. Many pieces of equipment have pick up points and vent into the atmosphere through a common baghouse. The use of the control equipment is important in keeping the plant under the major source threshold for particulate matter (PT). There is a combined total of thirty-

five baghouses, bin vents and scrubber in the facility. There are also a total of four natural gas burning boilers in the facility.

The finished products from both the liquid process and powder process are stored in finished product storage tanks and then, packaged and boxed on site. The finished product storage tanks as well as all the tanks in the facility do not hold any petroleum liquids and the material stored in them have very low vapor pressures. Therefore, these tanks are listed as insignificant activities.

Huish Detergents will be restricted on the plantwide VOC emission rates to be less than 90 tons per year. Also to preclude Title V applicability, the emissions of combined hazardous air pollutants shall not exceed 22.5 tons per year, the emissions of individual hazardous air pollutants shall not exceed 9.0 tons per year, and the plantwide particulate emission rates are limited to less than 90 tons per year. Therefore, 401 KAR 52:030, Federally enforceable permits for non-major sources, is applicable for the source.

MINOR PERMIT REVISION R1:
Huish Detergents intends to install a Sodium Hypochlorite production line consisting of a BiChlor membrane Electrolyzer with 59 cells and 2 packed columns for chlorination. Chlorine emissions from the Hypochlorite reactor/scrubber will be through the exhaust fan (Source ID: C-6102) and are estimated not to exceed 0.001 tons per year at full capacity of 353,526 tons per year of output. Huish Detergents will also install a 2 million British thermal units per hour (mmBtu/hr) natural gas water heater and 11 process storage tanks. Emissions from the storage tank Hydrogen Safety Seal and Stack (Source ID: T3102) will be negligible. No significant increase in HAP emissions will occur.

MINOR PERMIT REVISION R2:
Huish Detergents found some administrative errors that was in their original permit, but was not seen until review of the revised permit F-05-016 R1. The following revisions are included in permit F-05-016 R2:

1. On page 51 of the permit, there are mistakes under the L-1 PT (Particulate Matter).

   F-05-016 R1 had: Emission units shall have a maximum emissions PT (Particulate Matter) <=4.62 lbs/hr for Emission Units 9 and 16, and 11.9 lbs/hr for Emission Unit 14. The processing rate of each equipment shall not exceed 1.5 tons/hour with control devices in use at all times of operation.

   This should be L-1 PT (Particulate Matter) Emission units shall have a maximum emissions PT (Particulate Matter) <=4.62 lbs/hr for Emission Units 9 and **14**, and 11.9 lbs/hr for Emission Unit **16**. The processing rate of each equipment shall not exceed 1.5 tons/hour **for Emission Units 9 and 14, and 6.9 tons/hr for Emission Unit 16** with control devices in use at all times of operation.

2. On page 45 there is a typo: (GACT5 (005 & 027) Emission Unit 25 (Low suds dust collection, DC-7) Emission Unit 27 (Fluid bed dryer, DC-2): This should be (GACT5 (**025** & 027) Emission Unit 25 (Low suds dust collection, DC-7) Emission Unit 27 (Fluid bed dryer, DC-2):

3. On page 53 the Emission factor based on mass balance: EU5 = 216.7 lb/ton. This should be EU5 = **21.7** lb/ton.

4. On page i of xvii the Maxthruput: 0.08 tons/hour. This should be **0.8** tons/hour.

COMMENTS:

Emission factors and their source:

Emission factors for the boilers were obtained from AP-42 Chapter 1, Table 1.4-1 and Table 1.4-2.

Applicable regulations:

401 KAR 59:015, New indirect heat exchangers, applies to all four boilers.

40 CFR 60 Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, applies to Boiler #1 and Boiler #3.

401 KAR 59:010, New process operations, applies to all other emission points (EP05 to EP35)

Sodium Hypochlorite Calculations:

In this application, the company submitted emission calculations for the Hypochlorite reactor and the Hydrogen Safety Seal associated with Tank T-3102. It was determined that the Hypochlorite reactor and the Safety Seal are insignificant activities, having less than ½ ton per year of HAP emissions. All of the tanks are insignificant activities. The calculations done for the mixers and pre-mixers were also accepted as applicable for insignificant activities. Thus, these emission points are not permitted in the new permit but are listed as insignificant activities.

EMISSION AND OPERATING CAPS DESCRIPTION:
In order to keep particulate matter emissions to below 90 tons per year, the facility is required to have limitations on their production rates. At the same time, a requirement to maintain and operate the air pollution control equipment is included. The control equipment has to be in use at all times that the facility is in operation.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12.into its air quality regulations.